

### **REMARKS/ARGUMENTS**

Claims 2, 4, 6, 7, 9-12, 19, 21, 22, 24, 26, and 27 have been examined and rejected. The present response amends claim 24 to make a minor correction unrelated to patentability or any pending rejections. Accordingly, claims 2, 4, 6, 7, 9-12, 19, 21, 22, 24, 26, and 27 remain pending. Reconsideration and allowance of all pending claims are respectfully requested.

Claim 2 has been rejected under 35 U.S.C. § 103 as being anticipated by U.S. Patent No. 6,384,963 issued to Ackerman, et al. (hereinafter "Ackerman") in view of U.S. Patent Publication No. 2002/015439 by Vasilyev, et al. (hereinafter "Vasilyev"). Although this rejection of claim 2 was designated in the action as a rejection under 35 U.S.C. § 102, it is assumed to be a § 103 rejection because two different references are being relied upon.

A threshold requirement for an obviousness rejection is that the cited references, in combination, disclose or suggest all of the recited features of the rejected claim. Here, claim 2 recites Raman amplification with various special characteristics. One of the characteristics is that gain level be set responsive to a "desired signal to noise ratio." For this feature, the Examiner relies on the teaching of Vasilyev, citing Figs. 3B and 4B and paragraphs [0009] and [0011]-[0017]. The Vasilyev teaching is, however, directed towards Erbium-doped fiber application rather than the Raman amplification of claim 2. Accordingly, the relationships between optical signal to noise ratio and pump power as well as other relationships are set out for Erbium-doped fiber amplification rather than Raman amplification. This distinction is true of the plots of Figs. 3B and 4B, the paragraph cited by the Examiner, and the paragraphs that refer to Figs. 3B and 4B. This material would not teach or suggest to one of skill in the art how to set optical to signal noise ratio in the context of Raman amplification. The present application, by contrast, provides such teaching in the form of Fig. 2 and the supporting equations. Vasilyev is accordingly not relevant prior art, sufficient basis for overcoming the rejection of claim 2.

Another requirement for a *prima facie* case of obviousness is a suggestion to combine the references. Here, the references cannot be combined because of their disparate amplification

types. The Ackerman patent discloses Raman amplification scheme using co-propagating pump energy. Vasilyev is strictly directed to Erbium-doped fiber amplification. The relationships between pump power and signal to noise ratio or gain presented in Vasilyev are inapplicable to the Ackerman system because of the differences in amplification technique. Systems and methods for optimizing an Erbium-doped fiber amplifier cannot be cobbled into a Raman amplifier. This is further reason for the allowability of claim 2.

Claims 4, 6, 7, 9, 10, 11-12, 19, 21, 22, 24, 26, and 27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,356,383, issued to Cornwell, Jr. et al. (hereinafter "Cornwell") in view of Ackerman and further in view of Vasilyev. This rejection is believed to be improper for reasons similar to those given in relation to claim 2.

Again the rejection relies upon the Vasilyev publication for its teaching of setting pump powers to achieve a desired signal to noise ratio. Yet independent claims 4, 19, and 24 are directed towards Raman amplification and the graphs and relationships of Vasilyev which pertain to Erbium-doped fiber amplification will be unhelpful. Accordingly, the cited references in combination fail to disclose or suggest all of the recited features of independent claims 4, 19, and 24. This is sufficient reason to find these independent claims to be allowable.

Furthermore, it would not have been obvious to combine the Cornwall, Ackerman and Vasilyev references. In particular, the optimization of signal-to-noise ratio of the Vasilyev Erbium-doped fiber amplifiers cannot be applied to the Raman amplification of Ackerman. This is further reason for the allowability of claims 4, 19, and 24.

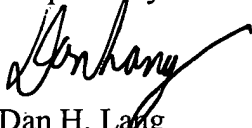
Claims 6, 7, 9, 10, 11-12, 21, 22, 26, and 27 are allowable for at least the reason of their dependence from allowable claims 4, 19, and 24. Furthermore, claims 6, 21, and 26 recite that "first gain level is also set responsive to a maximum tolerable saturation level." The teaching of Vasilyev, relied upon by the Examiner, is again inapplicable here because it relates to Erbium-doped fiber amplification rather than the required Raman amplification. Also it would not have been obvious to combine Vasilyev with the other references to obtain the invention as recited in

these claims. This is further reason for the allowability of claims 6, 21, and 26 on their own merits. The rejection of claims 7, 9, and 10 is not understood because it is made out over Cornwall in view of Ackerman and Aoki with no reference to the Vasilyev reference relied upon in the rejections of the independent claims.

Conclusion

For the foregoing reasons, Applicant believes all the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned at (408) 446-8694.

Respectfully submitted,



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